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AT&T

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March 26, 1992

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Federal Communications Commission
Office of the Secretary

Ms. Donna Searcy
Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

Re: Ex Parte Presentation
MM Docket No. 87-268

Dear Ms. Searcy:

Today, Arun Netravali, Robert Keeler and William Ninke of AT&T Bell Laboratories and William Radwill and I of AT&T met with Tom Stanley, Robert Pepper, William Hassinger, Gordon Godfrey, David Reed, and Steven Selwyn of the Commission staff to discuss digital video standards raised on the above-referenced docket. The attached materials were discussed in our meeting.

Two copies of this Notice were submitted to the Secretary of the FCC on the date of the meeting in accordance with Section 1.1206.(a)(1) of the Commission's Rules.

Sincerely,

Robert K. Graves/sah

Attachment

cc: G. Godfrey
W. Hassinger
R. Pepper
D. Reed
S. Selwyn
T. Stanley

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List A B C D E

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Video Standards - AT&T Briefing

March 26, 1992

Agenda

Purpose and overview - Robert Graves

HDTV Compression - Arun Netravali

Terrestrial/Satellite/Cable HDTV requirements - Arun Netravali

Other digital video standards - Bill Ninke

Standards - Marketing perspective - Bob Keeler

Summary - Robert Graves

Purpose and Overview

- **Discuss relationships between FCC process for setting HDTV standards in U.S., and MPEG and other video standards**
- **These activities are not in conflict -- both reflect the evolution to digital technology**
- **AT&T projects address both MPEG and U.S. broadcast/entertainment television markets**
  - **— Current MPEG-II efforts -- AT&T a leading contributor**
  - **— High-performance algorithm for Zenith/AT&T HDTV system**
  - **— High-performance HDTV-compatible algorithm responding to CableLabs low-bit-rate 525-line digital television RFP**

HDTV Compression

- **Terrestrial/Cable/Satellite HDTV has special requirements**
  - **— Different from multi-media computers**
  - **— Different from video-conferencing/video-telephony**
- **Compression technology for different applications uses techniques from the same menu, e.g., motion compensation, DCT**
- **Customization for different applications can result in substantial performance improvements -- without sacrificing interoperability**

Terrestrial/Satellite/Cable HDTV Requirements

- **Best picture quality consistent with 6 MHz bandwidth**
- **Simple, inexpensive decoder for HDTV receivers**
- **Quick recovery from scene, channel changes**
- **Robust transmission in taboo channels**
- **Coverage as good as NTSC**
- **VCR features**
- **Interoperability**
  - **digital**
  - **progressive scanning**
  - **square pixels**
  - **packet-like data format**
- **Real hardware; real transmission tests**

Other Digital Video Standards

- **P*64 - established with international agreement**
  - **— Motivation: interactive video telephony and conferencing**
  - **— Symmetrical - low encoder and decoder cost**
  - **— Minimal delay critical**
- **MPEG-I - established with international agreement**
  - **— Motivation: interactivity with digital storage media (CD-ROM)**
  - **— Incorporates VCR features**
  - **— Asymmetrical - low decoder, reasonable encoder costs**
- **MPEG-II - requirements evolving, far from settled**
  - **— Bit rates - 4 to 9 Mb/sec for 525-line or 625-line TV**
  - **— AT&T Bell Laboratories is a leading MPEG contributor**
  - **— Could be defined to be compatible with entertainment-oriented standards like HDTV standards resulting from FCC process**

Standards - Marketing Perspective

- **Two distinct digital video market segments, based on distinct customer needs**
  - **— Entertainment-oriented: broadcast, cable, satellite, fiber; HDTV and digital 525-line NTSC format**
  - **— Telecommunications/computer/multi-media digital video**
- **Entertainment TV needs:**
  - **— Picture quality in a television format**
  - **— Interoperability among television delivery media**
  - **— Access control for pay services**
- **Non-entertainment video needs:**
  - **— Wide range of formats, performance levels**
  - **— Flexible organization for creating, modifying, editing**
- **Common technology base for entertainment and non-entertainment segments**
- **Interoperability**
  - **— Digital representation and processing can yield sufficient interoperability between market segments**
  - **— Interconnections possible, driven by customer needs**

Summary

- **FCC process for choosing HDTV standard is fair, open**
- **FCC Advisory Committee process has accelerated U.S. development, made U.S. digital technology a leader**
- **FCC should proceed to adopt HDTV standard optimized for U.S. television industry, in a non-disruptive evolution to digital technology**
- **MPEG is still being defined, may eventually encompass variations separately optimized for entertainment and other applications**